

2003 SHELLFISH GROWING AREA STATUS REPORT

Including Classification Trends for Report Years 1986 through 2003

December 2003



Shellfish Sanitation Program

Water Monitoring, Assessment, and Protection Division
Environmental Quality Control - Bureau of Water
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**Water Monitoring, Assessment, and Protection Division - Bureau of Water
South Carolina Department of Health and Environmental Control
Shellfish Sanitation Program**

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Executive Summary

The South Carolina Department of Health and Environmental Control is responsible for the classification of approximately 571,010 acres of estuarine and riverine habitat that has the potential to be utilized for the cultivation and harvest of molluscan bivalve shellfish. These classifications are implemented through S.C. Regulation 61-47, Shellfish, which was promulgated for the purpose of public health protection. Waters used for shellfish cultivation and harvest activities are maintained and protected under the standards established under Regulation 61-68, Water Classifications and Standards.

Review of data used to prepare the 2003 annual shellfish reports (collected 2000-2002) indicate a slight increase in Approved area and Prohibited area classifications above that of the previous year's report. The current report's Approved area acreage of 70.2% of total represents the greatest percentage of Approved area acreage for the entire trend review period. Concomitantly, Conditionally Approved and Restricted area classifications exhibit slight acreage decreases from the 2002 report.

A review of data for report years 1986 – 2003 indicates overall stability within all classification types over the entire period, although upward and downward oscillations routinely occur on a yearly basis. These classification oscillations can often be directly associated with precipitation patterns.

INTRODUCTION

South Carolina has approximately 571,010 acres of estuarine and riverine growing area habitat suitable for the cultivation and harvest of molluscan shellfish. Shellfish growing areas are assigned water quality classifications for the primary purpose of public health protection. The South Carolina Department of Health and Environmental Control (DHEC) establishes these classifications based upon the quality of the overlying water within the growing areas. The purpose of this document is to provide an overview of the current classifications of these areas, as well as classification trends for the period 1986 to 2003. Additionally, a brief overview of the regulations used to establish these classifications is provided.

BACKGROUND

DHEC annually updates the acreage potentially available for molluscan bivalve shellfish harvesting and makes data available through growing area sanitary survey reports. Prior to 1996, growing area acreages were calculated utilizing a hand held planimeter and National Oceanic and Atmospheric Administration (NOAA) Mercator Projection Charts at 1:80,000 and 1:40,000 scales. Since Report Year 1996, acreages have been computer generated utilizing data digitized from 1:24,000 National Wetlands Inventory quadrangles. The computer generated acreage excludes approximately 60,000 acres of habitat that were included in the past estimates and which were determined to be physically unsuitable for shellfish propagation. The current GIS methodology is vastly superior to the planimetry method and more accurately reflects actual habitat acreage. Classified acreage described in this document is based on data derived through implementation of the Shellfish Sanitation Program's ambient monitoring network. The growing Area water quality monitoring strategy adheres to guidelines established by the United States Food and Drug Administration's National Shellfish Sanitation Program (NSSP) and South Carolina Regulation 61-47. Classifications are developed from the Shellfish Sanitation Program water quality management areas databases. Statewide shellfish growing area totals during the period 1997-2000 fluctuated slightly due to several growing area boundary modifications; however, these data have been rectified. Additionally, extremely small differences in acreage totals may result from year-to-year due to technical issues (e.g. < 0.01% from 2001-2003).

CLASSIFICATION SYSTEM

Regulation 61-47, Shellfish - Growing Area Survey and Classification

Regulation 61-47, Shellfish, provides shellfish harvesting classifications which are used to protect public health by ensuring that shellfish are harvested from areas that have acceptable water quality, and that meet the requirements of the NSSP. South Carolina currently classifies 571,010 acres of growing area habitat within 25 Shellfish Management Areas. Acreage classified as Approved, Conditionally Approved, Restricted, or Conditionally Restricted is designated by the Department as having a potential for existing use for shellfish harvest.

Classification Designations

Approved Area - waters that have been approved by the Department for harvesting shellfish for direct marketing or human consumption.

Conditionally Approved Area - waters that meet Approved Area criteria under specified environmental conditions and time periods established by the Department. The conditions and time periods are based upon established standards specified in a management plan.

Restricted Area - waters that have been classified by the Department as Restricted and where harvesting for direct marketing is not allowed. Shellfish may be harvested from *Restricted Areas* only by special permit.

Conditionally Restricted Area - waters that meet Restricted Area criteria under specified environmental conditions and time periods established by the department. The conditions and time periods are based upon established standards for potential pollution sources specified in a management plan. This classification varies from the Restricted classification in that it is based on predictable events.

Prohibited Area - waters that have been classified by the Department as Prohibited for the harvesting of shellfish for any purpose related to human consumption. A Prohibited Area is a Closed Area. Administrative closures are implemented adjacent to permitted wastewater discharges and marina facilities.

RESTORATION EFFORTS

In 1995 DHEC entered into a Memorandum Of Agreement (MOA) with the South Carolina Department of Natural Resources (SCDNR). The agreement was entered into for the purpose of establishing cooperative procedures and actions for classification and management of molluscan shellfish growing waters and resources and for the restoration of shellfish growing waters closed to harvesting for public health reasons. This effort would satisfy the goals outlined in Regulation 61-68 regarding maintenance and improvement of classified waters and would further the concept of shellfish harvest restoration as established by the Interstate Shellfish Sanitation Conference (ISSC) of which South Carolina is a member, represented by the Department. A portion of the MOA required development of a listing for all coastal Areas not having an Approved classification for the harvest of shellfish. This list is updated annually, provided to SCDNR for prioritization for resource restoration purposes, and submitted to the United States Environmental Protection Agency in partial fulfillment of SCDHEC's reporting requirements under the Federal Clean Water Act (303d).

TREND DATA

A review of Shellfish Program classification data for the 1986 through 2003 annual shellfish reports (data through 2002) indicates stability in terms of acreage within individual classification types. For the 2003 report year, a moderate acreage increase above 2002 levels in the Approved classification was observed. Conversely, a moderate decrease in Restricted classification acreage was observed. Additionally, slight changes in Conditionally Approved (-) and Prohibited (+) classification acreages were also observed.

During the trend review period 1986 - 2003, Approved classification acreage, as a percent of total acreage, ranged from a high of 70.2 % (present report year 2003) to a low of 64.1% in 2000. It is interesting to note that the lowest percentage of Approved acreage occurred in the 2000 report data, which utilized data from the 3-year period ending December 31, 1999. The data collection and review period coincides with the 1997-1998 recognized El Niño period. Restricted classification acreage ranged from 15.4% in present year 2003 to 20.2% in 2000. Conditionally Approved classification acreage, ranged from 3.5% in 1986 to 0.2% in 1992 and 1994. The 2003 level of 1.4% does not appear to represent a significant reduction below 2002 levels. Additionally, Prohibited classification acreage ranged from a low of 11.0% during 1986 to a high of 13.7% in 1999. The 2003 level of 13.0% indicates no significant change from 2002 levels.

CONCLUSIONS

Data review indicates relative stability within all classification types throughout the 1986 - 2003 trend review period. Slight variations occur from year to year within all classification types. Variations in the Approved and Restricted classifications appear to be affected primarily by SE United States precipitation patterns.

Figure 1

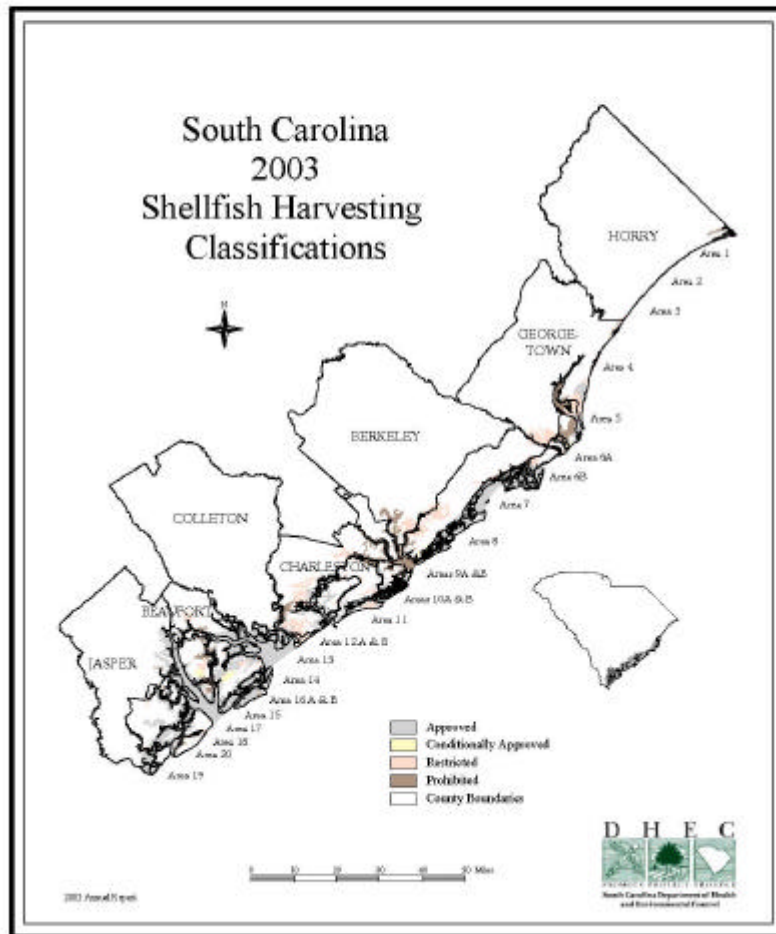
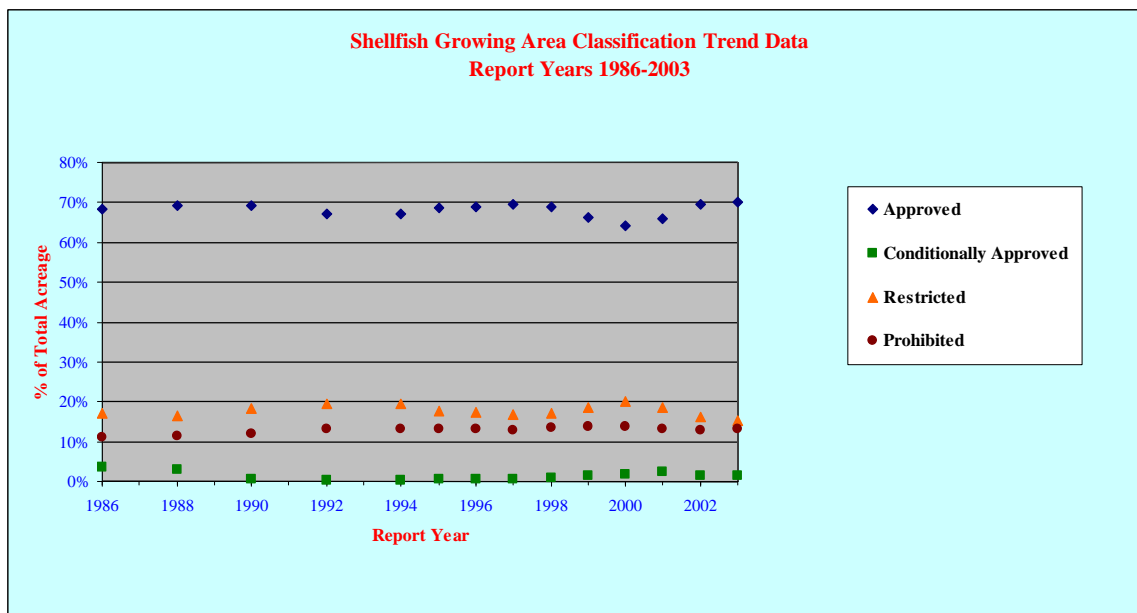


Figure 2



Shellfish Growing Area Acreage
By Classification Type

| | 1986 | 1988 | 1990 | 1992 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Approved | 433817 | 437763 | 437982 | 424750 | 424228 | 392,242 | 393,039 | 397,708 | 393,064 | 377,486 | 366,795 | 376,309 | 396,090 | 400,706 |
| Conditionally Approved | 22363 | 18970 | 3704 | 1352 | 1107 | 3,192 | 3,192 | 4,096 | 4,811 | 8,712 | 11,089 | 13,827 | 7,964 | 7,860 |
| Restricted | 108896 | 103309 | 115635 | 122549 | 122849 | 100,759 | 99,608 | 96,476 | 96,853 | 106,772 | 115,218 | 105,435 | 92,522 | 87,971 |
| Prohibited | 70077 | 72231 | 74945 | 83205 | 83405 | 74,847 | 75,200 | 72,760 | 76,313 | 78,069 | 77,937 | 75,469 | 74,433 | 74,473 |
| Total | 635,153 | 632,273 | 632,266 | 631,856 | 631,589 | 571,040 | 571,039 | 571,040 | 571,041 | 571,039 | 571,039 | 571,040 | 571,009 | 571,010 |

Table 1

Shellfish Growing Area Acreage
By Classification Type as Percent of Total

| | 1986 | 1988 | 1990 | 1992 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Approved | 68.3% | 69.2% | 69.3% | 67.2% | 67.2% | 68.7% | 68.8% | 69.6% | 68.8% | 66.1% | 64.2% | 65.9% | 69.4% | 70.2% |
| Conditionally Approved | 3.5% | 3.0% | 0.6% | 0.2% | 0.2% | 0.6% | 0.6% | 0.7% | 0.8% | 1.5% | 1.9% | 2.4% | 1.4% | 1.4% |
| Restricted | 17.1% | 16.3% | 18.3% | 19.4% | 19.5% | 17.6% | 17.4% | 16.9% | 17.0% | 18.7% | 20.2% | 18.5% | 16.2% | 15.4% |
| Prohibited | 11.0% | 11.4% | 11.9% | 13.2% | 13.2% | 13.1% | 13.2% | 12.7% | 13.4% | 13.7% | 13.6% | 13.2% | 13.0% | 13.0% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

Table 2